

PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Mark E. Cook, et al.

Confirmation No.: 3715

Serial No.: 10/761,715

Group Art Unit: 1644

Filed: 01/21/2004

Examiner: Michael Szperka

Title: METHOD FOR IMPROVING BODY WEIGHT
UNIFORMITY AND INCREASING CARCASS
YIELD IN ANIMALS

Attorney Docket No: 960296.00143

DECLARATION UNDER 37 C.F.R. §1.132

Commissioner For Patents
Alexandria, VA 22313-1450

Dear Sir:

I, Mingder Yang, on oath say and declare that:

1. I am the same Mingder Yang who is one of the named inventors of the above-identified patent application. I am currently employed as the Chief Scientific Officer of aOvaTechnologies, Inc., Madison, Wisconsin. I obtained my Ph.D. and M.S. degrees from the University of Wisconsin-Madison in Animal Nutrition and Bacteriology, respectively. I have worked as a research scientist specializing in Animal Nutrition and Immunology for 10 years. A copy of my Curriculum Vitae is attached as Exhibit A.

2. I have reviewed the Office Action issued in this matter by the U.S. Patent and Trademark Office on December 19, 2007. I understand that claims 1, 5-10, 12, 25, 27, and 30-40 are rejected under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 6,213, 930 or U.S. Patent No. 6,383,485. This Declaration is submitted to support the application. In particular, this Declaration is submitted to provide a statistical analysis that shows that feeding ROSSXROSS male chickens with 0.5 g anti-PLA₂ antibody egg yolk powder per Kg feed (0.05% by weight) did not improve body weight uniformity.

3. I used a paired-T test to determine if the coefficients of variation for the treated groups were different from the control groups. A paired-T test is appropriate when there is a close relationship between pairs of data points. Here, there were data from 6 trials, with each trial comparing chickens fed with a dosage of 0.5g anti-PLA₂ antibody /kg feed to a control

group of chickens that did not receive anti-PLA₂ antibody. Although there were significant between-trial differences, each trial had within it a pair of related data points, variation measurements of a control and a treatment group. Thus, the paired-T test was the most appropriate statistical test to use.

4. I took the coefficient of variation of mean body weight data for the 6 trials in which the ROSSXROSS male chickens were fed 0.5 g anti-PLA₂ antibody egg yolk powder per Kg feed or a control diet from Table 1 of the present application. I conducted a paired T test (one tail) to compare the mean coefficients of variation of mean body weight of the chicks that were fed the control diet and the chicks that were fed the anti-PLA₂ antibody diet and found the P value to be 0.583. The conclusion of this test is that there is no statistical difference in terms of variations between treated and control group when the dose is at 0.5g/Kg. Thus, feeding ROSSXROSS male chickens with 0.5 g anti-PLA₂ antibody egg yolk powder per Kg feed (0.05% by weight) did not improve body weight uniformity.

5. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated this 9th day of May, 2008.



Mingder Yang

Exhibit A

CURRICULUM VITAE

Mingder Yang

Chief Scientific Officer
aOvaTechnologies, Inc.
3513 Anderson St., Ste 100
Madison, WI 53704

Education:

- 1996-2001 Ph.D., University of Wisconsin-Madison, Animal Science Department, in Animal Nutrition, Ph.D. Dissertation: Conjugated linoleic acid (CLA) prolongs the survival and reduces cachexia of the autoimmune NZB/W F1 mouse; Role of cytokine regulation by CLA in body weight wasting and murine systemic lupus erythematosus.
- 1994-1996 M.S., University of Wisconsin-Madison, Department of Bacteriology, Master thesis: Wortmannin inhibits the production of reactive oxygen and nitrogen intermediates and the killing of the *Saccharomyces cerevisiae* by isolated chicken macrophages.
- 1991-1993 Second Lieutenant in Taiwan Army, Taiwan
- 1987-1991 B.S., Department of Zoology, National Taiwan University, Taipei, Taiwan.

Current Title:

2005 to Now CSO, VP, R&D of aOvaTechnologies, Inc.

Professional Experience:

- 2005 – Now CSO, VP R&D of aOvaTech Inc.
- 2002 – 2004 Postdoctorate/Lab manager in Department of Animal Sciences, University of Wisconsin-Madison.
- 1997 – 2001 Research Assistant, Department of Animal Sciences, University of Wisconsin-Madison.
- 1994 – 1997 Research Assistant, Department of Poultry Science, University of Wisconsin-Madison.

- 1993 – 1994 Research Assistant, Institute of Clinical Medicine, Medical School,
National Taiwan University, Taipei, Taiwan.
1991 – 1993 Second Lieutenant in Taiwan Army, Taiwan.

Honors, Scholarship:

- Vilas Travel Fellowship, 2002.
Food Research Institute Annual Meeting: Poster Presentation Award, 2001.
WALSAA Travel Grant, 2000.
Mary Heisdorf Scholarship, 1999/2000.
Busby Memorial Fund, Travel Scholarship, 1999.
Food Research Institute Annual Meeting: Poster Presentation Award, 1999.
Mary Heisdorf Scholarship, 1998/1999.
Purina Mills Research Fellowship, 1996/1997. \$12,500.
Research Creativity Award, Taiwan National Science Council, 1991.

Patents:

- Cook, M. E., Yang, M. & Parize, M. W. (2002) Method of increasing longevity and preventing body weight wasting in autoimmune disease by using conjugated linoleic acid. U. S. Patent 6,395,782 B1.
Cook, M. E., Yang, M. & Etzel, M. R. (2003) Method of protecting antibody integrity and activity during food/feed processing by using carbohydrates. US patent pending.
Cook, M. E., Yang, M. & Barnes, D. M. (2003) Egg antibody to endotoxin receptor peptides for animal growth enhancement and improving feed efficiency. US patent pending.
Cook, M. E., Yang, M. & Roberson, K. (2003) Method for improving body weight uniformity and increasing carcass yield in animals. US patent pending.

Teaching:

- 2001, 2002, 2003, 2004 Poultry Center of Excellence Summer program. Immunology
ELISA lecture and lab.

Publications and Presentations:

- Park, Y., Yang, M., Storkson, J.M., Albright, K.J., Liu, W., Cook, M.E. & Pariza, M.W.
(2007) Effect of Conjugated Linoleic Acid (CLA) Isomers on Serum Tumor
Necrosis Factor- α Concentration in Mice. J. Food Biochem. 31: 252-265.

- Schwartz, M., Yang, M. & Cook, M. (2006) Effects of egg antibody to phospholipase A₂ (aPLA₂) on preventing coccidia induced growth depression. Poultry Science Annual meeting, Abstract 60.
- Boback, E.A., Trott, D.L., Cook, M.E. & Yang, M. (2006) Method in heat stabilization of gallus domesticus immunoglobulin Y (IgY). Poultry Science Annual meeting, Abstract W55.
- Trott, D.L., Yang, M., Utterback, P.L., Hellestad, E.M., Kopkebeck, K.W. & Cook, M.E. (2006) Methods to improve the economics of egg antibody production. Poultry Science Annual meeting, Abstract 17413.
- Trott, D., Yang, M. & Cook, M.E. (2005) Egg anti-botulinum toxoid A antibody production. The first National Center for Food Protection and Defense Annual Conference. Abstract.
- Roberson, K.D., Kalbfleisch, J.L., Pan, W., Charbeneau, R.A., Cook, M.E. & Yang, M. (2004) Egg antibody to phospholipase A₂ increases carcass yield in male broilers. Poultry Science Annual Meeting: Abstract 667.
- Schwartz, M., Yang, M. & Cook, M.E. (2004) A Method to Prevent Egg Production Losses when Protecting Humans from *Salmonella enteritis* (SE) Transmitted by Eggs. Food Research Institute Annual Meeting Abstract. Madison, Wisconsin. Poster presentation was awarded the John H. Nelson Undergraduate Research Award.
- Roberson, K., Pan, W., Cook, M., & Yang, M. (2003) Development of Egg Yolk Anti-Phospholipase A₂ to Improve Efficiency of Meat Animal Production and as a Possible Replacement for Antibiotics (Broiler Grow-out Trial). Midwest Poultry Consortium Summit poster presentation.
- Yang, M., Cook, M.E. & Roberson, K. (2003) Development of Egg Yolk Anti-Phospholipase A₂ (PLA₂) to Improve the Efficiency of Meat Animal Production and as a Replacement for Antibiotics. Midwest Poultry Consortium Research Summit Poster Presentation, Minneapolis, MN.
- Park, Y., Yang, M., Storkson, J., Albright, K., Liu, W., Cook, M., & Pariza, M. (2003) Effects of CLA Isomers on Tumor Necrosis Factor. AOCS Annual Meeting ANA1.
- Sammel, L. M., Claus, J. R., Cook, M. E. & Yang, M. (2003) Endotoxin-Mediated Pink Color Defect in Uncured Cooked Chicken, Reciprocal Meats Conference: A14.
- Yang, M., Cook, M. E. & Roberson, K. (2003) The Effect of Feeding Yolk Antibody to Phospholipase A₂ (aPLA₂) on Growth and Feed Conversion in Broiler Chicks. Poultry Science Association: A119.
- Claus, J. R., Cook, M. E., Yang, M., Sammel, L. M., Sagili, J. & Oberman, Z. F. (2003) Endotoxin-mediated pink color defect in chicken breasts. Poultry Science Association: A368.
- Yang, M. & Cook, M. E. (2003) Dietary Conjugated Linoleic Acid Decreased Weight Loss and Extended Survival Following the Onset of Kidney Failure in NZB/W F1 Mice. Lipids 38:21-24.
- Yang, M. & Cook, M. E. (2003) Dietary Conjugated Linoleic Acid Decreased Cachexia, Macrophage TNF- α Production and Modifies Splenocyte Cytokines Production. Experimental Biology and Medicine 228:51-58.

- Cook, M. E., Butz, D. Li, G., Pariza, M. W., Whigham, L. & Yang, M. (2003) Conjugated linoleic acid enhances immune responses, but protects against the collateral damage of immune events. In *Advances in Conjugated Linoleic Acid Research*, Volume II. pp 283-291.
- Yang, M. (2002) Conjugated Linoleic Acid (CLA) Prolongs The Survival and Reduces Cachexia of The Autoimmune NZB/W F1 Mouse: Role of Cytokine Regulation by CLA in Body Weight Wasting and Murine Systemic Lupus Erythematosus. Ph.D. Dissertation. University of Wisconsin-Madison.
- Yang, M., Pariza, M. W., & Cook, M. E. (2000) Dietary conjugated linoleic acid protects against end stage disease of systemic lupus erythematosus in the NZB/W F1 mouse. *Immunopharmacology & Immunotoxicology* 22: 433-449.
- Cook, M. E., DeVoney, D., Drake, B., Pariza, M. W., Whigham, L., & Yang, M. (1999) Dietary Control of Immune-Induced Cachexia: Conjugated Linoleic Acid and Immunity. In M.P. Yurawecz, M.M. Mossaba, J.K.G. Kramer, M.W. Pariza, & G.J. Nelson, eds. *Advances in Conjugated linoleic acid Research*, Volume I, pp 226-237.
- Yang, M. & Wu, W. (1997) Dietary Supplementation Of Thiamin In Excess Of Nrc Recommendation Can Prevent Immunosuppression Caused By Toxic *Fusarium Proliferatum*. Poultry Science Association: A32.
- Yang, M., Wu, W., & Mirocha, C. J. (1996) Wortmannin inhibits the production of reactive oxygen and nitrogen intermediates and the killing of the *Saccharomyces cerevisiae* by isolated chicken macrophages. *Immunopharmacology & Immunotoxicology* 18: 597-608.
- Tien, N. Y., Lo, C. F., Yang, P. L., Wu, T. T., Yang, M. D., Wang, C. H., Lee, C. H., Fraser, M. J., & Kou, G. H. (1994) Influence of nucleotide-sequences related to the 5'-untranslated leader region of polyhedrin messenger-RNA on the expression of Hbsag in insect cells. *Zoological Studies* 33: 140-152.

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